

Factsheet: Impacts of recreational fishing on wildlife and environment

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1. Recreational Fisheries: Socioeconomic Importance, Conservation Issues and Management Challenges

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http://www.fecpl.ca/wp-content/uploads/2013/06/Arlinghaus_Cooke_2009.pdf

Excerpts from the study:

“For many years it was assumed that recreational fishing was a benign phenomenon. This assumption is beginning to be challenged with increasing research conducted on the topic.”

“Fundamental to the function of management regulations for fish and wildlife is the need for high levels of compliance. Unfortunately, fishing suffers from less than perfect compliance (Muth & Bowe, 1998; Sullivan, 2002), at times making management strategies falter or fail (Sullivan, 2002).”

“Excessive exploitation of animal populations though elevated anthropogenic mortality represents one of the most prominent conservation issues shared by hunting and fishing (Mace & Reynolds, 2001).”

“Recent syntheses have revealed that recreational fishing can lead to environmental pollution and disturbance in a number of ways:

- **“In addition, angling can disturb wildlife (especially birds) if access to waters or shoreline is uncontrolled (Cryer et al., 1987). Trampling of vegetation can cause alterations of habitat and negatively impact on invertebrates (Mueller et al., 2003).”**
- **“Fishing activities generate litter, leading to localised habitat alteration. Litter such as fishing line and hooks can become entangled in various wildlife species, which can result in injury or mortality (e.g., Nemoz et al., 2004).”**
- **“However, the most contentious issue is the deposition of lead from fishing sinkers, which can create localised pollution and, if ingested (particularly by waterfowl), may result in lead poisoning and death (Scheuhammer et al., 2003).”**
- **“In addition to inadvertent pollution, there is **also ‘intentional’ pollution arising from using bait to attract animals**. In fishing, ground-baiting (with cereals, maggots or other bait) or chumming, the process of distributing bait in water to attract fish, is common in both freshwater and marine environments. **The excess nutrients from this activity (Arlinghaus & Mehner, 2003; Niesar et al., 2004) can lead to a deterioration in water quality and a reduction in benthic fauna (Cryer & Edwards, 1987).”****

This paper treats recreational fishing as the aquatic complement to the recreational hunting of terrestrial organisms (primarily birds and mammals).

Its objectives are to: (i) present a universal definition of recreational fishing and common capture methods; (ii) report the global magnitude of recreational fishing participation; (iii) identify conservation issues in recreational fishing; and (iv) discuss the management challenges in reconciling fish resource use and conservation in recreational fishing.

This chapter discusses both freshwater and marine environments but, due to space limitations and the diversity of conditions in different parts of the world, only selected examples are provided.

Definitions

Recreational fishing is fishing for aquatic animals that do not constitute the individual's primary resource to meet essential physiological needs.

High exploitation

Excessive exploitation of animal populations through elevated anthropogenic mortality represents one of the most prominent conservation issues shared by hunting and fishing (Mace & Reynolds, 2001).

Recreational fishing has only recently been recognised as a significant contributor to global fish declines, particularly on inland waters (Cooke & Cowx, 2004, 2006), and some clear examples have now been presented (Post et al., 2002; Coleman et al., 2004).

Harvest or disturbance during the reproductive period

Many recreational fisheries intentionally or accidentally target fish during the reproductive period. This can have negative consequences on individual fitness, reproductive success and recruitment (Cooke et al., 2002). For example, Atlantic salmon *Salmo salar* are targeted during their upriver spawning migrations. Although many fish are released, warm water temperatures can lead to high levels of catch-and-release mortality (Wilkie et al., 1996).

Smallmouth bass *Micropterus dolomieu* and largemouth bass provide sole paternal care during which time the parental male must fan the developing offspring in their nest and defend the offspring from potential brood predators. Removal of parental males leads to nest predation and increased rates of nest abandonment (Suski et al., 2003).

Catching and releasing fish shortly before reproduction can also lead to reduced reproductive output and larval size-at-hatch (Ostrand et al., 2004), which is why many jurisdictions have implemented close seasons to protect fish during the reproductive period.

Sub-lethal effects, wounding, and the one that 'got away'

In recreational fishing, there are many fish that are landed and released with the assumption that they will survive. This regulatory or voluntary catch-and-release can involve billions of fish world-wide (Cooke & Cowx, 2004; Arlinghaus et al., 2007). However, given that post-release mortality rates range from about zero to near 90 per cent (Muoneke & Childress, 1994; Bartholomew & Bohnsack, 2005), the assumption that the released fish survive is not always valid.

Pollution and environmental disturbance

Recent syntheses have revealed that recreational fishing can lead to environmental pollution and disturbance in a number of ways.

In addition, angling can disturb wildlife (especially birds) if access to waters or shoreline is uncontrolled (Cryer et al., 1987). Trampling of vegetation can cause alterations of habitat and negatively impact on invertebrates (Mueller et al., 2003).

Fishing activities generate litter, leading to localised habitat alteration. Litter such as fishing line and hooks can become entangled in various wildlife species, which can result in injury or mortality (e.g., Nemoz et al., 2004).

However, the most contentious issue is the deposition of lead from fishing sinkers, which can create localised pollution and, if ingested (particularly by waterfowl), may result in lead poisoning and death (Scheuhammer et al., 2003).

In addition to inadvertent pollution, there is also **'intentional' pollution arising from using bait to attract animals. In fishing, ground-baiting** (with cereals, maggots or other bait) or chumming, the process of distributing bait in water to attract fish, is common in both freshwater and marine environments. The excess nutrients from this activity (Arlinghaus & Mehner, 2003; Niesar et al., 2004) can lead to a deterioration in water quality and a reduction in benthic fauna (Cryer & Edwards, 1987).

Supplementation, stocking and introductions

To support recreational fishing, many natural resource agencies supplement or stock endemic populations with additional animals that are either transferred from other locales or have been raised in captivity. Although an important management tool, stocking itself may cause conservation problems.

For example, largemouth bass are widely stocked to enhance fishing opportunities in the United States. However, there is a growing body of evidence to suggest that fish stocking can cause problems for the recipient population (Molony et al., 2003) and the broader ecosystem (Holmlund & Hammer, 2004), particularly if the stocked fish are not locally adapted to their new environment (Philipp et al., 2002). Outbreeding depression can arise in the recipient population leading to reduced growth rates, problems with immuno competency, and mortality (Philipp et al., 2002; Goldberg et al., 2005).

In addition, captive-bred animals may be inferior to their wild conspecifics leading to changes in the recipient population (Molony et al., 2003).

Many species of fish have been introduced outside their endemic range in an effort to create new recreational angling opportunities. Rainbow trout *Oncorhynchus mykiss*, carp *Cyprinus carpio* and largemouth bass are three of the most widely introduced species. In some cases they have caused notable changes in community structure (reviewed in Cambray, 2003). Stocking and particularly introductions are among the most abused management tools in contemporary wildlife and fisheries management. Thorough risk analyses should be carried out before these practices are implemented (Arlinghaus et al., 2002).

Management challenges

The conservation issues identified above, coupled with the great popularity of recreational fishing, call for improved management to address the most contentious issues. Below, we present an abbreviated list of the most important management challenges faced by contemporary recreational fisheries stakeholders.

Declining participation

A common problem for recreational fishing in some countries is declining license sales (and presumably participation rate), particularly in North America (Fedler & Ditton, 2001).

Stakeholder conflicts

Fishing requires space and interacts with wild living organisms. At times, anglers and others engaged in recreation occupy the same space, generating conflict intrasectorally (Arlinghaus, 2005). However, one of the greatest sources of conflict in the future is likely to be fish welfare and the more fundamental and ideologically driven animal rights movement (Arlinghaus, 2005; Arlinghaus et al., 2007). For these stakeholders, hunting a wild animal for the sake of recreation is typically perceived as a cruel activity that should stop. This perspective conflicts with the value and belief system of many recreational anglers (Arlinghaus, 2005). There are jurisdictions such as Germany where the only accepted reason for fishing for recreation is the appropriation of food, and practices such as the use of live bait, competitive fishing or voluntary catch-and-release are not tolerated (Arlinghaus, 2007).

Because of the similarities between hunting and fishing, we suggest that the way forward is to enhance the interaction between anglers, hunters and fish and wildlife managers in order to find ways to address animal welfare concerns in practice.

Compliance

Fundamental to the function of management regulations for fish and wildlife is the need for high levels of compliance. Unfortunately, fishing suffers from less than perfect compliance (Muth & Bowe, 1998; Sullivan, 2002), at times making management strategies falter or fail (Sullivan, 2002).

Recent research efforts have focused on identifying a typology of the motivations for poaching which are common to both the hunting and angling sectors. Muth & Bowe (1998) suggest that understanding the motivations behind noncompliance provides opportunities for developing strategies such as education to counter this activity.

Outlook

For many years it was assumed that recreational fishing was a benign phenomenon. This assumption is beginning to be challenged with increasing research conducted on the topic. Arlinghaus & Cooke (2005) stressed that recreational fishing should be studied in the same way as commercial fishing.

2. The Effect of Shoreline Recreational Angling Activities on Aquatic and Riparian Habitat Within an Urban Environment: Implications for Conservation and Management

http://www3.carleton.ca/fecpl/pdfs/EM_Otooleetal2009.pdf

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Abstract

There is growing concern that recreational shoreline angling activity may negatively impact littoral and riparian habitats independent of any direct or indirect influences of fish harvest or fishing mortality through mechanisms such as disturbance (e.g., trampling, erosion)

and pollution (e.g., littering).

With growing interest in providing urban angling opportunities and in response to increasing interest in developing protected areas and parks, a better understanding of the ecologic impacts of shoreline angling is necessary to address multi-user conflicts, to develop angler outreach and educational materials, and to optimize management of angling effort to maintain ecologic integrity of riparian and aquatic ecosystems.

However, like the commercial fishing sector (Dayton and others 2005), broader environmental impacts are associated with recreational fishing in freshwater systems that extend beyond impacts on individual fish or fish populations as a direct result of harvest or fishing mortality.

For example, **anthropogenic debris along shorelines and in adjacent water bodies have a negative impact on the local environment** (Cryer and others 1987; Radomski and others 2006). Loss of fishing gear (e.g., line, lures, hooks, lead weights) along shorelines can affect both the substrate in which it is deposited as well as wildlife present in the area (Forbes 1986; Cryer and others 1987; Lewin and others 2006; Radomski and others 2006). **Lead has a slow dissolution rate and a high stability in sediment, leading to ingestion by waterfowl, which subsequently may suffer the effects of lead poisoning** (Cryer and others 1987; Scheuhammer and others 2003). **In addition, waterfowl have also been shown to become entangled in discarded fishing line** (Cryer and others 1987; Franson and others 2003).

Areas that experience **high fishing effort may also be subjected to considerable shoreline changes because of general human activity, which can lead to a cascade of deleterious changes in both the terrestrial and aquatic environments**. Increased foot traffic into angling access points could potentially lead to removal of vegetation (Cole 1987; Marion and Cole 1996; Müller and others 2003), loss of plant diversity (Cole 1987; Ros and others 2004), soil compaction (Marion and Cole 1996; Roovers and others).

Management and Conservation Implications

To mitigate the potential deleterious effects of shoreline angling, regulators must adopt a comprehensive approach that seeks to change angler attitudes and behaviour as well as encourage compliance with local regulations.

There may also be **a need to revise existing regulations or enact new policy to regulate angling effort.**

Angler education and outreach are key components to decreasing many deleterious effects on the environment because changes in angler behaviour, especially with regard to discarded fishing equipment or other litter, are relatively straightforward solutions. Publication of educational material directed at anglers of all ages and experience levels must be made easily available. Information in this material should outline the potential for ecologic degradation because of shoreline angling as well as potential steps to mitigate the effects of a single individual. Similarly, regulators should encourage responsible angling behaviour through a few simple steps.

Although the majority of the sites sampled were within close proximity to parks and recreational areas (walking and bicycle paths, parking lots), trash bins were not always within close range. A simple recommendation for litter reduction would be for the placement of bins at popular shoreline angling locations along with posted notices reminding users of the potentially harmful effects of discarding angling and non-angling waste. In addition, efforts to decrease packaging associated with fishing gear or providing incentives (e.g., deposits on Styrofoam worm containers) to return or recycle angling-related packaging would be worthwhile.

Mitigating environmental impacts may take the form of actions such as either formalizing high angling-activity areas (and perhaps build engineered structures such as docks or fishing platforms) or restricting angling activity along natural shorelines that are still relatively undisturbed.

By protecting low-use areas, fish communities will likely benefit because the same species and abundance are found at high angling-activity sites where they are subject to greater fishing pressure. If a restorative approach is taken, the timescale for ecologic recovery for most high angling activity sites is unknown. Further assessments must be completed before these areas can be effectively re-established.

Furthermore, there is insufficient information on the ecologic and environmental consequences of shoreline angling to optimize effectively the management of angling effort to maintain ecologic integrity of riparian and aquatic ecosystems. Further research could include experimental designs involving the use of time-lapse cameras to evaluate actual user intensities at high-activity sites (i.e., angler use vs. other recreational activities, such as canoe launching or dog walking).

The work presented here is intended to contribute to the deficiency in knowledge of ecologic and environmental effects of shoreline angling. We hoped that it will stimulate more research on this topic.

3. The Role of Recreational Fishing in Global Fish Crises

“Failure to recognize the potential contribution of recreational fishing to fishery declines, environmental degradation, and ecosystem alterations places ecologically and economically important resources at risk. Elevating recreational fishing to a global conservation concern would facilitate the development of strategies to increase the sustainability of this activity.”

<http://bioscience.oxfordjournals.org/content/54/9/857.full>

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Abstract

Exploitation of fishery resources has become a major conservation issue on a global scale.

Commercial fisheries have been repeatedly blamed for the worldwide declines in fish populations. However, we contend that the recreational fishing sector also has the potential to negatively affect fish and fisheries. Here we present evidence to show that both recreational and commercial fishing sectors deserve consideration as contributors to the exploitation of fish in marine and inland waters.

The lack of global monitoring and compiling of statistics on recreational fishing participation, harvest, and catch-and-release has retarded our ability to understand the magnitude of this fishing sector. Using data from Canada, we estimate that the potential contribution of recreational fish harvest around the world may represent approximately 12 percent of the global fish harvest.

Failure to recognize the potential contribution of recreational fishing to fishery declines, environmental degradation, and ecosystem alterations places ecologically and economically important resources at risk. Elevating recreational fishing to a global conservation concern would facilitate the development of strategies to increase the sustainability of this activity.

Evidence of the negative consequences of recreational fishing harvest in both freshwater and marine systems is mounting rapidly. In Canada, four important inland fisheries showed evidence of collapse that could be attributed to recreational fishing (Post et al. 2002).

Although many fish captured by anglers are released (approaching 100 percent for some species), there can be substantial postrelease mortality (Muoneke and Childress 1994, Cooke and Suski forthcoming) as well as more subtle sublethal effects on growth and fitness (Cooke et al. 2002). Release mortality in recreational fisheries is analogous to bycatch discards in commercial fisheries, an internationally recognized conservation problem (Alverson et al. 1994).

Environmental degradation from fishing was once attributed primarily to commercial activities (Dayton et al. 1995), but the recreational sector is now understood to have its fair share of responsibility (Cryer et al. 1987). Discarded fishing line and hooks can foul birds, marine mammals, corals, and other marine life, resulting in substantial injury and mortality (Cowx 2002, McPhee et al. 2002).

Also, the accumulation of lead sinkers can result in mortality of waterbirds and have effects at higher trophic levels (Cowx 2002). Anglers may disturb wildlife, trample riparian vegetation to gain access to the water, and increase nutrient loading through ground baiting (distribution of organic bait to attract fish). Recreational boat traffic and the associated noise pollution, waves, erosion, and scarring also contribute to environmental degradation (Cowx 2002, McPhee et al. 2002).

Recreational fisheries are also responsible for an as yet undetermined degree of degradation of fish stocks through fishery enhancement practices (Cowx 1998) or introductions (Cambray 2003). Notwithstanding these issues, the position of recreational fisheries must be balanced against the huge value (billions of dollars) of the sector to regional and local economies (Cowx 2002).

Recreational fishing and global fish crises

Several factors may explain the lack of attention to recreational fisheries in the consideration of global fishery crises. Collapses induced by recreational fishing may be difficult to detect (Post et al. 2002). Few long-term monitoring programs exist that could be used to detect declines in a global context. Furthermore, anglers exhibit complex behavior, and fisheries respond dynamically to exploitation (Post et al. 2002). Also, because recreational anglers represent a vocal and effective constituent group, the standard response to perceived or actual decline or alteration in population structure is supplementation (Cowx 1998). Hence, the impact of recreational fishing is typically addressed by curing symptoms rather than by addressing underlying causes.

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4. TWC report on the latest rescue, Jan 17, 2017

https://twitter.com/TWC_Wildlife/status/821397908209668098

"The blood test confirmed that the mallard has lead in his system, presumably from nibbling a lead fishing sinker, or lead buck shot. Lead doesn't degrade in the environment, so when it is discarded it can stay present for hundreds of years. **Unfortunately, lead hunting and fishing equipment is still legal outside of national parks in the province of Ontario, and it is common for waterfowl to have some lead in their system.**

5. THE OTHER BYCATCH

http://c.ymcdn.com/sites/www.nrawildlife.org/resource/resmgr/the_other_bycatch_.pdf

Impacts of Recreational Fishing Gear on Non-Target Wildlife

Jonathan Balcombe, Ph.D.

The Humane Society Institute for Science and Policy

6. Invasive Species: How They Affect the Environment

<http://www.environmentalscience.org/invasive-species>

For example, many fish species have been introduced into the Great Lakes for sport fishing. They have no documented negative impacts and provide recreational opportunities and a food source. However, when these alien species begin to have negative consequences in the new habitat, they are called invasive species. Invasive species may cause environmental harm, economic harm, or impact human health.

7. Great Lakes Environmental Assessment and Mapping (GLEAM) Project

<http://greatlakesmapping.org/lake-stressors>

Cumulative stress to the Laurentian Great Lakes is determined from 34 individual stressors, along with habitat and lake-specific weights derived from an extensive survey of Great Lakes researchers. A stressor is defined in this project as a pressure, which exceeds its range of normal variation due to human activity, affecting species, biological communities, or ecosystems.

Great Lakes stressors were divided into seven categories:

- Aquatic habitat alterations: Changes to aquatic habitat from diverse causes, such as shoreline hardening and erosion control structures, port and marina development, and tributary dams
- Climate change: Changes to seasonal, average, and extreme temperature, precipitation, and ice cover
- Coastal development: Land-based human development near lake margins, such as residential and commercial development and industrial activities
- Fisheries management: Changes to Great Lakes ecosystems resulting from fishing pressure, stocking activities, and aquaculture

- Invasive species: Changes to Great Lakes ecosystems from invasive and nuisance species in abundances not previously seen
- Nonpoint source pollution: Nutrients, sediments, and waterborne contaminants transported from watersheds to the Great Lakes by streams and rivers and atmospheric deposition
- Toxic chemical pollution: Chemical pollutants from industrial and agricultural sources

8. How Fishing Line Hurts Birds Fishing Line is a Hazard to Birds

<http://birding.about.com/od/Threats/a/How-Fishing-Line-Hurts-Birds.htm>

By Melissa Mayntz

Fishing line may seem like a simple byproduct of enjoying a day by the lake or river, but discarded fishing line can be a vicious hazard to many kinds of birds, causing not only injuries but a range of other problems.

Where Fishing Line Threatens Birds

Anywhere fishing line is carelessly discarded, it can be a threat to birds. The most common areas where fishing line is a hazard include along popular fishing shorelines of rivers, lakes and beaches, off public fishing docks in urban and suburban areas and tangled in trees and bushes near fishing spots. In any of these areas, birds can be ensnared in the line, leading to injuries, drowning and other threats.

Birds Affected by Fishing Line

At first thought, many fishers and birders assume that fishing line only threatens birds in the water where fishing takes place, such as ducks, geese and other waterfowl. While these types of birds do have a higher rate of fishing line injuries, the line can also affect other types of birds, including:

- **Gulls, terns and shorebirds on beaches**
- **Wading birds that forage alongside rivers**
- **Songbirds that get snared in tree tangles**
- **Raptors that hunt in fishing areas**

Not only can fishing line threaten a wide variety of birds, but other animals such as turtles, muskrats, otters and even curious pets can be at risk in areas where fishing line is inappropriately discarded. In rare cases, large tangles of fishing line have even been known to injure kayakers or swimmers.

How Fishing Line Hurts Birds

Monofilament fishing line is a strong, durable material that does not degrade or decompose, so one tangle can stay in an area for months or years, threatening birds and other wildlife every day. Depending on the size or length of the line and how birds encounter it, fishing line can hurt birds in many ways, such as:

Tangle Injuries: Birds that get tangled in fishing line will struggle, but the line only tightens and can cut into legs, feet, necks, wings and any other body part that gets ensnared. When the line tightens enough without relief, limbs can be critically disabled, even amputated.

Movement Restriction: If the fishing line does not tighten enough to cause a serious injury to a bird, it can still restrict their movement by decreasing the range of motion of their legs or wings. This can make it harder to forage or escape from predators.

Starvation: When fishing line gets tangled around a bird's bill, it can cause starvation as the bird is unable to forage effectively. Birds that accidentally ingest fishing line may eventually starve as well, as the plastic in their stomach restricts how much food they can digest.

Drowning: When birds are netted by discarded fishing line, they may drown as a tide comes in, waters rise or their struggles force them under the water with no way to escape.

Nest Risks: Birds may be tempted to use fishing line in their nests, but doing so can threaten both brooding parents and young hatchlings. Parents may get tangled as they shift around while brooding, and as young birds grow, they can be tangled in loose bits of line. In extreme cases, hatchlings may even be bound together by a tangle as they grow, resulting in poor growth, as in a case of conjoined robins in Utah in 2011.

Hook Injuries: When discarded fishing line contains hooks, birds might see the glittery trinket as a tempting morsel, but their mouths and throats can be cut by the hook. Hooks can also cut into birds that are snared in fishing line, causing additional injuries that can become infected.

Lead Poisoning: If fishing line is attached to lead sinkers, birds that ingest those sinkers are subject to the toxic effects of lead poisoning. This type of poisoning can be a lengthy, debilitating illness that causes much suffering for affected birds.

Overfishing: While discarded fishing line is not responsible for overfishing, if an area is very popular with sport fishermen the food supply for piscivorous birds is severely depleted. This can force them to adjust their range or rely on less suitable food sources that do not provide the best nutrition.

9. Documented and Potential Biological Impacts of Recreational Fishing: Insights for Management and Conservation

https://www.researchgate.net/publication/228638110_Documented_and_Potential_Biological_Impacts_of_Recreational_Fishing_Insights_for_Management_and_Conservation

Abstract

While the impacts of high exploitation on fish populations and aquatic ecosystems are well-documented for commercial fishing, particularly in the marine environment, the potential biological impacts of angling received less attention.

This paper discusses angling patterns within a framework of basic ecological and evolutionary literature and examines potential biological impacts of angling by focus-ing on study results associated with high exploitation rates and pronounced selective exploitation. The impacts range from impacts occurring directly on the exploited species (truncation of the natural age and size structure, compensatory mechanisms, loss of genetic variability, evolutionary changes), to those that occur on the aquatic ecosystem (changes in trophic cascades, trait-mediated effects).

As a third category, impacts related to the angling activity per se are distinguished (habitat modifications, wildlife disturbance, nutrient inputs, loss of fishing gear). Although the main threats to fish often are localized outside recreational fisheries, there is growing evidence that angling and angling associated activities can lead to a decline of fish populations and affect aquatic ecosystems in various ways provided that the degree of the fishing mortality is high and the selective exploitation is intensive. In conclusion, management implications for sustainable recreational fisheries and areas for future research are outlined.

10. Environmental effects of fishing

https://www.sciencedaily.com/terms/environmental_effects_of_fishing.htm

Fishing gears and fishing activities are said to be destructive when the environmental impacts of fishing is negative.

Recreational fishing in the Mediterranean is more harmful than previously thought

January 9, 2015
ScienceDaily

A total of 10 percent of adults living in developed countries practice recreational fishing, which in the Mediterranean Sea represents around 10 percent of the total production of fisheries. **Despite its importance, this fishing is not as controlled or studied as professional fishing. For the first time, a study examines this activity, whose effects are increasingly more similar to traditional fishing. For this reason, scientists are demanding better regulation.**

11. THE IMPACT OF RECREATIONAL FISHING ON ESTUARINE BIRDLIFE ON THE FAR NORTH COAST OF NEW SOUTH WALES

Compiled by Lance Ferris, President of Australian Seabird Rescue Inc., and Rochelle Ferris BSc (Marine Biology).

http://www.pittwater.nsw.gov.au/data/assets/pdf_file/0005/26744/IMPACT_FISHING_vs_WILDLIFE.pdf

“This study exposed inappropriate fishing practices, which directly affected birdlife, and determined that the highest incidence of entanglement in estuarine environments, was not caused by marine/estuarine debris, but by entanglement/hooks of estuarine seabirds and waterbirds by active fishers.”

“These emerging facts considerably altered the focus of the study. Media awareness programmes had reduced the incidence of un-attended set lines, and discarded line was still evident on beaches and rock-walls during the closure to fishing. This indicated that active fishing was the primary risk. Not only was there a shift in opinion on the primary cause of injury, but ASR personnel faced a considerable problem in addressing the issue.”

The impact of recreational fishing on estuarine birdlife, particularly seabirds, shorebirds and waterbirds, has generally gone unnoticed until 1992. Prior to 1992, the number of birds injured by fishing tackle along the coast of New South Wales, was considered to be minimal and therefore the impact of fishing activities posed little cause for concern, nor did the small number of reported incidents prompt investigation by management agencies. The ten-year study by Australian Seabird Rescue focused on estuaries between the Central Coast and North Coast of New South Wales. **During that study period, rescue and rehabilitation of seabirds, shorebirds and waterbirds, revealed an alarmingly high number of injured birds. This study exposed inappropriate fishing practices, which directly affected birdlife, and determined that the highest incidence of entanglement in estuarine environments, was not caused by marine/estuarine debris, but by entanglement/hooks of estuarine seabirds and waterbirds by active fishers.** It also established the risk factor across various species, quantified the rates of injuries and demonstrated high-risk areas within estuaries where birds gathered. **The report recommends several solutions, which include public awareness campaigns, advice on more appropriate fishing tackle/practices and the establishment of specialist rescue personnel.**

However, this fact was proven during 2001, when, following a major fish-kill, the Richmond River was closed to all forms of fishing for a period of five months. **During the period of closure, not one pelican, or any other species, for that matter, was found entangled in fishing tackle.** By stark contrast, in the first seven days of the re-opening of the river to recreational fishing, seven pelicans became entangled and/or hooked in fishing tackle. The high injury rate continued for several months.

In any period of five months, prior to the closure of the river to fishing, ASR members regularly rescued up to 40 seabirds/waterbirds injured by fishing tackle. None became hooked/entangled during the 5-month closure.

These emerging facts considerably altered the focus of the study. Media awareness programmes had reduced the incidence of un-attended set lines, and **discarded line was still evident on beaches and rock-walls during the closure to fishing. This indicated that active fishing was the primary risk. Not only was there a shift in opinion on the primary cause of injury, but ASR personnel faced a considerable problem in addressing the issue.**

ASR volunteers were then required to maintain a good rapport with fisherfolk, whilst diplomatically indicating that actions of active fisherfolk were the main cause of the birds' entanglements. It was important not lay blame on the fisherfolk and that any accident was only due to lack of awareness. Most importantly, during dialogue with responsible fisherfolk, was our knowledge that no-one intentionally hooked birds while fishing.

12. Impact of Recreational Fishing Gear

<http://www.nrawildlife.org/page/impactofrecreationa/Impact-of-Recreational-Fishing-Gear.htm>

The results of a recent survey on the harmful effects to wildlife from abandoned, cut line without removal, and similar irresponsible fishing hook and line equipment that remains in the environment is available here.

13. Why Recycle Fishing Line?

<http://www.emnrd.state.nm.us/SPD/fishingline.html>

"Thrown out fishing line can last for hundreds of years, harming marine life and wildlife."

Impacts of Fishing Line

Not every story ends as happily as the Heron Lake State Park osprey. Fishing line left in the water, on stream banks, or in trees is a hazard to animals who become entangled, leading to injury, disfigurement, drowning, strangulation, or starvation.

Fishing line impacts to fish and birds are dire, particularly for waterfowl such as osprey, geese and ducks. They can become severely injured or can starve due to blocked digestion.

Small lead sinkers pose their own set of problems much like monofilament. The lead can be ingested by waterfowl and fish, causing illness and death.

There is even a financial and operational cost to discarded fishing line, and boaters often feel the pain. For example, boat propellers and jet drive impellers can get tangled with fishing line and seize up. Line can enter bilge pumps, water intake valves, or wrap around the lower unit causing damage.

14. Untangling the Hazards of Fishing Line

<https://www.chicagoaudubon.org/content/untangling-hazards-fishing-line>

Thousands of birds and animals are injured or killed each year as the result of becoming tangled in a variety of man-made materials. A leading cause of wildlife entanglement is fishing line and its associated hooks and tackle that have been improperly disposed of along beaches, lakes, and ponds.

Fishing hooks and lines caught in branches and bushes harm aquatic animals such as turtles and frogs, and become tangled on the legs, wings, and beaks of birds. Geese, ducks and gulls sustain crippling injuries after one or both of their legs become wrapped in fishing line. A hook caught in a beak or mouth can make eating painful or impossible, resulting in death by starvation.

Always cut fishing line into pieces less than 6 inches long. Dispose of it, along with hooks and tackle, in appropriate covered containers so it does not become a risk to wildlife. Volunteer your time to clean up fishing line debris at local ponds, lakes, or beaches. Support the use of biodegradable fishing line that does not have an indefinite life span in the environment.

The Forest Preserve District of Cook County is working to install monofilament recycling containers on their property. These will allow for responsible disposal of dangerous fishing line debris. It's important that these receptacles themselves do not become hazards to birds. The design should include secure closure that will safely contain discarded materials, without allowing birds to enter and become ensnared.

15. Hook, Line and Sinker

It's all dangerous to wildlife (and humans too!)

<http://www.wildforprospectpark.com/fishing-impacts-wildlife>

Each year, thousands of birds, turtles and other animals die after becoming entangled in fishing line or stuck with fishing hooks.

HOW CAN YOU HELP?

By taking precautions and acting responsibly you can help to make the park a safer place for wildlife and park visitors.

If you choose to fish in Prospect Park, PLEASE follow these guidelines for the safety of our wildlife as well as children and dogs who visit the park:

- Fishing is "catch and release" only. Once a fish is caught, remove the hook and return it to the Lake unharmed.
- No barbed hooks are allowed.
- Anglers must respect the habitats and nesting grounds of birds and waterfowl.
- Leave fishing sites clear of all debris.
- Careless disposal of fishing line poses extreme hazards to birds and small animals. Hooks are especially dangerous to children and wildlife.
- Please take home even the shortest length of line and dispose of properly. OR dispose of line in one of the 4 fishing line recycling bins provided by FIDO located along the Lullwater and near the Well House by the lake.
- A New York State fishing license is required to fish in Prospect Park for people 16 and older.

Report Fishing Violations

Any fishing abuses witnessed should be immediately reported to the DEC.

The number to call is 1-800-TIPPDEC 1 (800) 847-7332.

Abuses to report: Use of barbed hooks. Keeping fish or throwing dead fish back in water. Ignorance in removing fish from lines. Fishing in off limits areas. Catching turtles or other wildlife. Improper disposal of fishing lines.

FOR MORE INFO: <http://www.prospectpark.org/visit/plan/safety#fish>

Helpful links: THE DEVASTATING EFFECT OF FISHING LINE ON WILDLIFE

<http://www.helpwildlife.com/>

16. Discarded fishing line harms wildlife

<http://www.skyhidailynews.com/news/discarded-fishing-line-harms-wildlife/>

August 2, 2011

Fishing line discarded along waterways can harm animals, and Colorado Parks and Wildlife officials urge anglers to dispose of line properly.

Every year dozens of birds and small mammals in Colorado get tangled up in fishing line along rivers, creeks and reservoirs.

Fishing line left on the bank is dangerous, said Scott Gilmore, statewide angler education coordinator for Parks and Wildlife. An animal can't untangle itself from fishing line so it is often fatal.

Earlier this summer, a kingfisher a bird that lives along riparian areas was found hanging dead in a tree along the Uncompahgre River in Montrose, hopelessly tangled in fishing line. During his career, Gilmore has seen lots of birds that have died in the same way. When a bird becomes tangled, it can't fly, run or protect itself from predators.

17. Birds Caught in Fishing Lines Dying by the Thousands

Stephen Messenger, Science / Natural Sciences, September 26, 2011

<http://www.treehugger.com/natural-sciences/birds-caught-in-fishing-lines-dying-by-the-thousands.html>

According to researchers, the fishing industry may be responsible for inadvertently killing up to 320 thousand birds annually. And the problem is so bad, it could soon drive some bird species to extinction.

At the World Conference on Marine Biodiversity this week, researchers from the UK's Royal Society for the Protection of Birds presented the results of a study which found that fishing fleets are clearly not doing enough to minimize the deaths of seabirds. According to a report from The Guardian, fishing nets and baited lines, many of which trawl over dozens of miles of ocean, have quietly been killing hundreds of thousands of birds.

Some species, such as several endangered albatross, are thought to have been driven to near extinction due to these irresponsible fishing techniques -- though some fisheries are worse than others.

18. Fishing Line Dangers

Posted Nov 21, 2005 by JOY COCHRAN in The Ledger

<http://www.theledger.com/news/20051121/lakes-and-wildlife-officials-try-to-educate-public-on-fishing-line-dangers>

Monofilament fishing line can be the bane of existence for wildlife. Workers clearing the lake shore at the South Lake Howard Nature Park witnessed first-hand the harm that can come to wildlife that become caught up in fishing line and other plastic.

19. Environmental Statement Regarding Discarded/Lost Fishing Line, Stainless Steel/Alloy Hooks and Fishing

http://www.ffc.org.au/SSA_fishing_line_environmental_statement.html

I/we acknowledge the negative impacts of discarded or lost fishing line in the aquatic environment and the increased dangers to wildlife of the use of stainless steel and alloy hooks (SS/A hooks).

Fishing line in aquatic environments can kill and injure repeatedly. Fish, mammals such as dolphins and sea lions and aquatic birds such as sea eagles and pelicans are all affected. Fishing line is easily collected and disposed of thoughtfully.

SS/A hooks are non-biodegradable and remain active in marine environments for longer than the alternatives. The negative effects of the use of SS/A hooks arise due to lodgment and entanglement in marine life, often with devastating effect.

We call on fishers to consider the impacts, avoid the disposal or loss of fishing line into aquatic environments and stop the use of SS/A hooks.

20. How Plastics Affect Birds

<https://www.bird-rescue.org/our-work/research-and-education/how-plastics-affect-birds.aspx>

Bits of plastic debris litter the shore: bottle caps, toys, cigarette lighters, fishing line and other garbage. Scientists are now documenting how this surge of plastic trash leaves a wake of death and disease that directly affects seabirds.

Fishing line in aquatic environments can kill and injure repeatedly.